GREEN ADVERTISING SKEPTICISM: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

***Purpose**: This study seeks to analyse quantitatively historical research trends and propose future directions in the field of consumer's skepticism towards green advertising through bibliometric analysis.*

***Methodology**: A bibliometric analysis was conducted on 261 articles sourced from Scopus and Web of Science, following Donthu et al. (2021) with the help of Biblioshiny. This study includes performance analysis and science mapping.*

***Findings**: "Skepticism towards green advertising" is found to be falling in the Niche quadrant of Thematic Map indicating an under researched area and co-occurrence analysis presents two clusters revolving around 'trust' and 'skepticism'*

***Limitations**: The selection of articles is confined to Scopus and Web of Science database published after 2000 in English language.*

***Practical Implications:** The study shall provide insights to academicians understanding literature and identifying the gaps.*

***Originality/value:** The study is a novel attempt to map the major themes in literature on 'skepticism towards green advertising'.*

KEYWORDS: *Green Advertising, Skepticism, Credibility, Bibliometric Analysis, Green Washing.*

INTRODUCTION

Recent decades have witnessed a raising interest in green products as pollution and climate change have become global social concerns (Zhang et al., 2018).With the increasing trend toward sustainable purchasing, companies invest substantial amount of money advertising their sustainability(Farooq & Wicaksono, 2021).Green advertising is increasingly utilized to promote eco-friendly products, and its positive impact on consumers' intention to purchase green products

is well-documented in the literature(Schmuck et al., 2018).It is suggested that green advertising creates a firm's or product's green image by using environmental claims to influence environmentally vigilant consumers (Segev et al., 2016).Companies can gain competitive advantage by presenting their products as environmental friendly products, to distinguish them from others(Tan, 2011). However, green advertisements frequently incorporate unclear facts, technical language, and vague messages. They often provide insufficient accurate details regarding the benefits of products for environment or exaggerate the advantages. These types of green advertisements can lead to increased consumer skepticism(Baum, 2012; Do Paço & Reis, 2012). Undoubtedly, a crucial issue in green marketing and advertising is whether eco-conscious consumers are skeptical of green advertisements (Do Paço & Reis, 2012).

Researchers are not only interested in knowing if the consumers are skeptical about green advertising but are also curious about its repercussions on market success of their green advertising campaigns. Consumer skepticism can cause serious financial damage to companies (Farooq & Wicaksono, 2021).Since skepticism reduces the positive impact of communication, analysing it is essential and may help companies craft more effective messaging to better engage consumers(Mohr et al., 1998). In the past, the importance of studying the consumer's skepticism of green advertising is well established. According to Mohr, Eroglu, and Ellen (1998), "consumer reluctance toward environmental claims is of great importance for public policymakers, consumer researchers, and practitioners. The study of this topic could contribute to gaining a better understanding of green consumers" (Mohr et al., 1998).Several studies have touched upon green advertising skepticism in various contexts. A lot of research has been done focusing on antecedents and consequences of green advertising skepticism (Do Paço & Reis, 2012; Farooq & Wicaksono, 2021; Leonidou & Skarmeas, 2017; Maria Finisterra do Paco & Reis, 2013; Silva et al., 2020; Theses & Lee, 2013). Some authors have studied the linkage of green advertising skepticism with consumer's green consumerism (Matthes & Wonneberger, 2014a), persuasion knowledge (Theses & Lee, 2013), consumer responses(Lee, 2013)and purchase behaviour (de Sio et al., 2022; Tan, 2011; Zhang et al., 2018). The green advertising skepticism have also been studied in the framework of social media (Luo et al., 2020)and influencer marketing.

With the ever-growing interest of academicians and marketers in understanding the consumer's skepticism towards green advertising there is evidently much room for on-going and up-to-date exploration of bibliometric analysis in this domain. To the best of the authors 'knowledge there is no study based on bibliometric analysis on the topic of skepticism towards green advertising and that can provide a one stop overview of existing literature and empowers scholars to identify the knowledge gaps for future investigation. The present study therefore attempts to identify the pattern of past research on skepticism towards green advertising and answer the following research questions:

RQ1: What are the overall research publication outputs/trends related to skepticism towards green advertising.

RQ2: Who or which are the most influential countries, journals, articles and authors amongst all those who have contributed to literature pertaining to skepticism towards green advertising?

RQ3: Can articles on skepticism towards green advertising be categories into different research streams?

The above research questions are addressed by employing bibliometric analysis. "Bibliometric analysis is a popular and rigorous method for exploring and analysing large volumes of scientific data. It enables us to unpack the evolutionary nuances of a specific field, while shedding light on emerging areas in that field" (Donthu et al., 2021). According to Donthu et al. (2021), bibliometric analysis methods are divided into two main categories: 1) performance analysis (related to assessing the productivity and influence of individual contributors such as authors, institutions, countries and journals), 2) science mapping (examines the relationships among individual contributors by employing techniques including citation analysis, co-authorship analysis, co-word analysis and bibliographic coupling) (Donthu et al., 2021). In this paper both performance analysis and science mapping are done. In the following section, the methodology adopted for conducting the analysis is discussed stating the procedure followed for acquisition of data, sources of data collection, screening of articles, extraction of bibmiometric data and combining of the data from the two sources. Then we proceed towards, the performance analysis of bibliometric data to identify the yearly publication trends, most prolific journals, countries, articles and authors. With the help of Biblioshiny software of R Studio, the co-citation analysis, co-occurrence analysis and thematic mapping is done to identify the relationships between the various components of bibliometric data. The study ends with the discussion of the results and conclusions.

Research Methodology

In this study, we shall follow the procedure suggested by Donthu et al., 2021. He alludeda five-step procedure: (i) Define the aims and formulating research questions, (ii) select the techniques for bibliometric analysis, (iii) collect the bibliometric data from databases (iv) conduct the bibliometric analysis and (v) state the findings(Donthu et al., 2021). The research questions have already been enumerated above for the present study. The next step requires, choosing the bibliometric techniques. Based on the objectives and research questions of this study, we will be using the descriptives such as annual growth rate of publications and average citations per publications. Then the study will discuss the annual scientific production, most relevant sources, most globally cited documents, countries with maximum no. of citations for the purpose of performance analysis. The science mapping will be done with co-authorship analysis, co-occurrence analysis of keywords and thematic mapping to examine the relationships between research constituents.

In accordance with the methodology proposed by Donthu et al., 2021, it was essential to collect high-quality data sourced from a reputable database for the bibliometric study. This study utilizes data derived from the Scopus and Web of Science databases, which are extensively employed by the global research community and offer data in a format compatible with various bibliometric analysis applications. Data was extracted from both sources using similar keywords such as green advertising, skepticism, credibility, trust, green washing and puffery with Boolean operators "OR" and "AND". The search was further restricted to include the only the journal articles published from year 2000 to 2024 in English language. Another inclusion criteria were applied to include the articles from the subject areas of Business, management and accounting, social sciences, economics and humanities. It was decided to include the publications belonging to the period of 2000 to 2024 as not much research was found before 2000 and tracking research in last 25 years would help academicians understand the trends in green advertising better in the changing economic and environmental scenario. The search query resulted in extraction of 201

records from Scopus and 180 records from Web of Science. The two data files were then merged using R Studio package, Version: 2024.09.1+394. The combined data from the two databases had 261 records after removing 118 duplicate documents. Although, the data extracted from two databases belonged to 2000 – 2024, after merging the two files, the data before 2007 was removed by R Studio (the reason could be difference in the format of two databases).

Data Analysis and Findings

For quantitatively assessing the academic output, we generally use bibliometric analysis (Cobo et al., 2011). "The two main techniques of bibliometric analysis are performance analysis and science mapping" (Donthu et al., 2021). For the purpose of this study, we shall be analysing the data for both these techniques with the aim of drawing conclusions regarding the major trends in the publications in the field of skepticism towards green advertising.

Performance Analysis: The descriptives based on bibliometric data extracted from are summarized in Table 1. The data that is combined with the help of R Studio, belongs to 2007 to 2024 and has been published in 138 Journals. The total number of articles that are analysed for bibliometric analysis is 261. The annual growth rate in the publications is approximately 29% which shows that the area of research has been attracting the researcher's attention at a very fast pace and that the area has a lot of scope for further study and exploration. The overall author's keywords count is 840 showing the varied contexts in which green advertising skepticism have been studied.

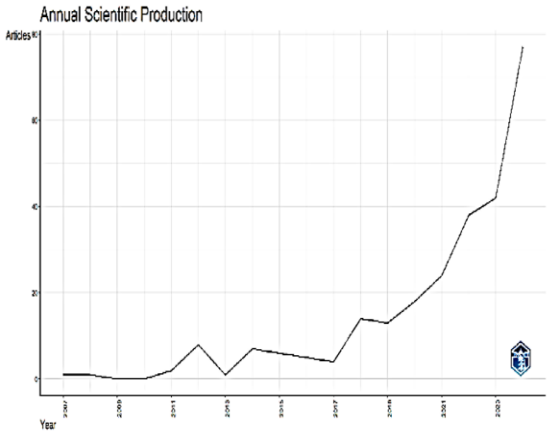
TABLE 1 BASIC INFORMATION ABOUT THE EXTRACTED DATA

Description	Results
Total number of documents	261
Sources (Journals)	138
Timespan	2007: 2024
Annual Growth Rate %	29.11
Document Average Age	2.95
Average citations per doc	26.62
References	10168
Author's Keywords	840
Authors	715
Authors of single-authored docs	23
International co-authorships %	22.61

Annual Scientific Production

Figure 1 illustrates the yearly scientific output of documents pertaining to green advertising skepticism. From 2007 to 2024, publications have increased significantly, as evidenced by the growing trend in the annual scientific production graph. Despite slow growth until 2016, there has been a significant increase in publications thereafter, with the biggest output occurring in the past several years. Since 2020, the growth rate has been 38.5, 33.3, 58.3, 10.5&83.3 respectively for the years 2020, 2021, 2022, 2023&2024 which clearly indicates that researchers are becoming interested in this domain and that a lot of scope of further research exists. Thus, we expect more research in the coming years.

Figure1 Annual Scientific Production

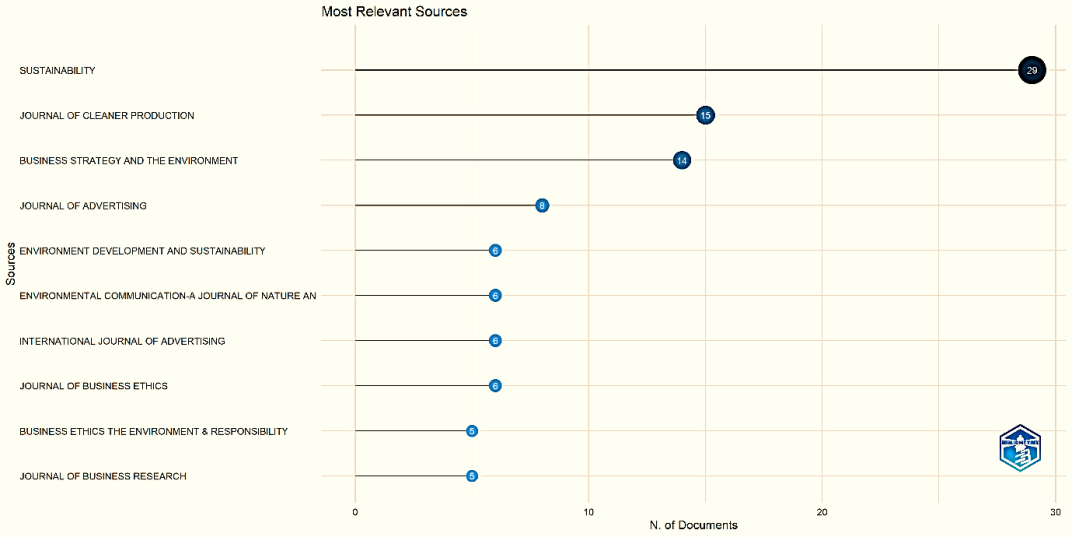


Year	Articles	Year	Articles
2007	1	2016	5
2008	1	2017	4
2009	0	2018	14
2010	0	2019	13
2011	2	2020	18
2012	8	2021	24
2013	1	2022	38
2014	7	2023	42
2015	6	2024	77

Prolific Journals and Articles

Based on the combined data of the Scopus and WOS, the list of top 10 journals that have published articles in the domain of skepticism towards green advertising have been provided in Figure 2. The data shows that maximum numbers of articles have been published in *Sustainability*, followed by *Journal of Cleaner Production* and *Business Strategy and The Environment.* Out of the total number of articles extracted (i.e. 261), the top ten journals have published 100. This information can immensely help researchers and academicians who are interested in studying the topics related to skepticism towards green advertising.

Figure 2 Most Relevant Sources



Next, the study identifies and enumerates the most globally cited articles in Table 2. TC refers to total number of citations. On looking at the title, most of the articles are related to green washing, its reasons, affects and misleading green advertising. This is signally towards the presence of exaggerations in green advertising and that the researchers are keenly interested in this subject. This table is also relevant for those who wish to study green washing and build an understanding for future research.

TABLE 2 MOST GLOBAL CITED DOCUMENTS

S.No.	Title	Authors	Year	TC
1	Greenwash vs. Brownwash: Exaggeration and Undue Modesty in Corporate Sustainability Disclosure	Kim, E. H., & Lyon, T. P.	2015	326
2	The influence of greenwashing perception on green purchasing intentions: The mediating role of green word-of-mouth and moderating role of green concern	Zhang, L., Li, D., Cao, C., & Huang, S.	2018	267
3	Perceived Greenwashing: The Effects of Green Marketing on Environmental and Product Perceptions	Szabo, S., & Webster, J.	2021	263
4	A new model for testing green consumer behaviour	Do Paco, A., Shiel, C., & Alves, H.	2019	210
5	Bridge the gap: Consumers' purchase intention and behavior regarding sustainable clothing	Rausch, T. M., & Kopplin, C. S.	2021	209
6	Misleading Consumers with Green Advertising? An Affect–Reason–Involvement Account of Greenwashing Effects in Environmental Advertising	Schmuck, D., Matthes, J., & Naderer, B.	2018	197
7	Greenwashing and environmental communication: Effects on stakeholders' perceptions	Torelli, R., Balluchi, F.,& Lazzini, A.	2020	185
8	Consequences of "greenwashing": Consumers' reactions to hotels' green initiatives	Rahman, I., Park, J., & Chi, C. G. Q.	2015	184
9	Consumers' perceptions of individual and combined sustainable food labels: a UK pilot investigation	Sirieix, L., Delanchy, M., Remaud, H., Zepeda, L., & Gurviez, P.	2013	181
10	Factors Affecting Skepticism toward Green Advertising	do Paço, A. M. F.,& Reis, R.	2012	166

Table 3 enumerates the top 10 Countries with most citations on skepticism towards green advertising. According to the bibliometric analysis with the help of Biblioshiny software, it is revealed that publications from the papers published in USA have been cited 1733 times. China received 1138 citations followed by Portugal with 466 citations. The Indian papers have been cited 310 times with an average citation rate of 16.3. Figure 3 presents the top ten countries where the maximum publications related to skepticism towards green advertising have been published in Scopus and Web of Science databases. USA, China, UK, India and Germany have the maximum number of publications. This shows that these countries are aware of their responsibility to make green advertising more authentic and believable as they are making a focused attempt to study this domain. Also, the other countries can benefit from the studies that are done in these countries.

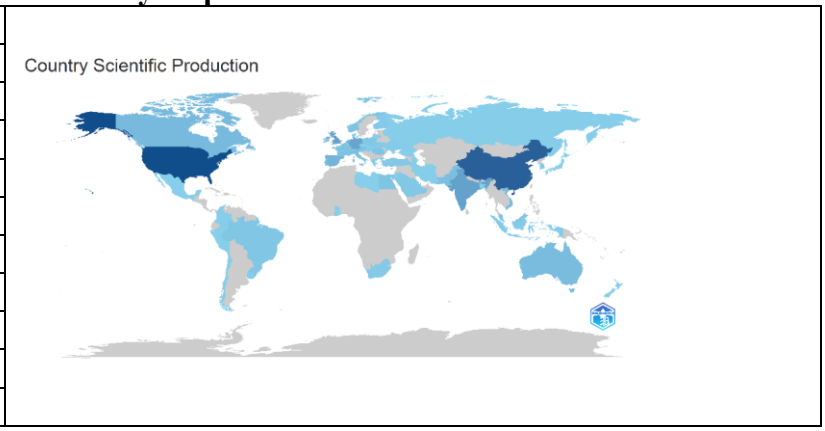
TABLE 3 TOP 10 COUNTRIES WITH MOST CITATIONS ON SKEPTICISM TOWARDS GREEN ADVERTISING

Country	Total Citations	Average Article Citations
USA	1733	36.9
China	1138	28.4
Portugal	466	77.7
Austria	424	84.8
Netherlands	414	41.4
Germany	394	23.2
India	310	16.3
Italy	276	39.4
Canada	271	67.8
France	249	124.5

Source: Authors Own compilation based on the data from Scopus; Web of Science with Biblioshiny

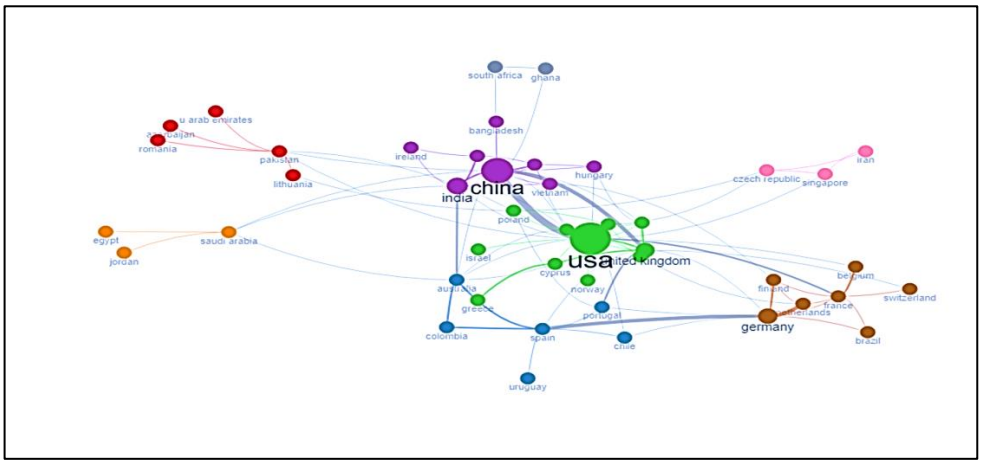
Figure 3 Country's Specific Scientific Production

REGION	FREQ
USA	99
China	84
UK	34
India	33
Germany	31
Spain	20
Canada	15
Netherlands	15
Australia	14
Vietnam	14



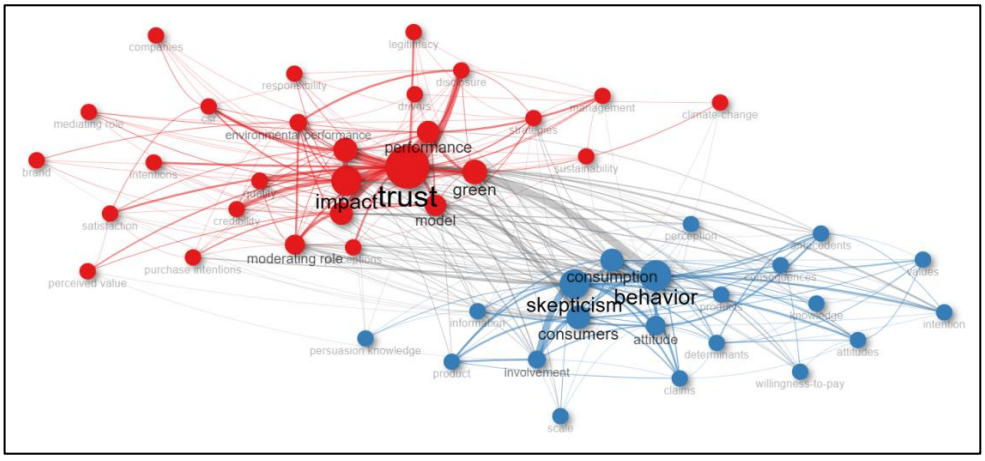
Science Mapping: After the above analysis on descriptives, most prolific authors, journals, articles, and countries, the present study moves ahead by presenting the co-authorship analysis, co-occurrence analysis and thematic mapping to conduct an advanced and detail study using Biblioshiny Software. Science mapping helps in establishing the connections and structural associations between the research elements ((Donthu et al., 2021). We first conducted the co-authorship analysis to identify the collaboration networks among the countries. The various clusters of countries collaborating with one another is depicted by different colours and the thickness of linkages shows the frequency of collaborations. According to collaboration network plot given in Figure 4, USA and China has largest networks with other countries. India has been connected to many countries including USA, China, Ireland, Australia, Saudi Arabia.

Figure 4 Co-authorship analysis: Collaboration network among countries



Co-occurrence analysis shows the keywords that are studied together in a study and can be very helpful in analysing the linkages between the various keywords of the documents. Figure 5 shows visualization map of network of co-occurrence of keywords along with the clusters they are placed into.

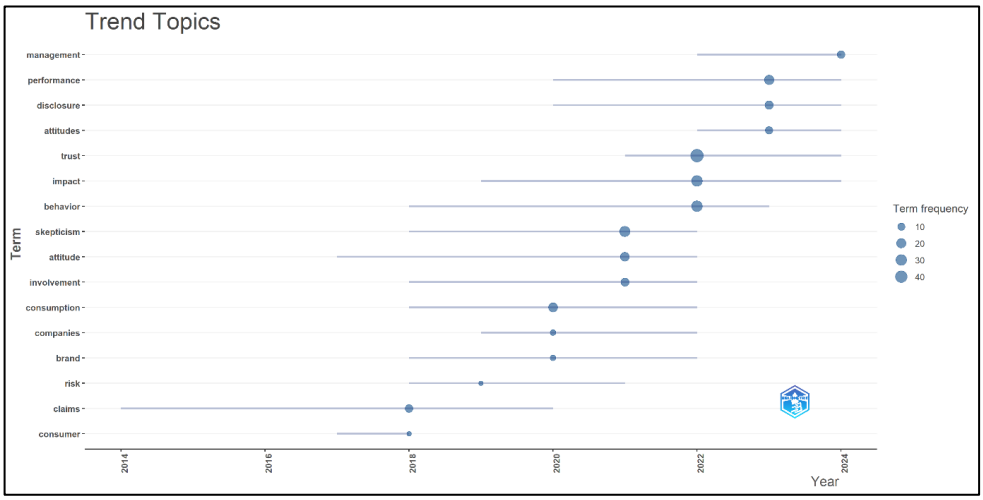
Figure 5 Co-occurrence Network: Keywords



Each cluster is depicted by a different colour and the size of the circles indicates the frequency of that keyword. Higher the frequency of occurrence greater will be the size of the circle. Lines between nodes show co-occurrence relationships, meaning the terms appear together in the same articles or documents. The Co-occurrence network given in Figure 5 clearly shows two clusters of keywords in blue and red colour. Red cluster representing the articles having "trust" as the central keyword and blue cluster representing the articles having "behaviour" and "skepticism" as the central keyword. A closer look at the cluster shows that skepticism towards green advertising have been studied in relation to various other keywords including behaviour, consumers, attitude, information, involvement, antecedents, consequences, intention, willingness-to-pay, persuasion knowledge, sustainability, corporate social responsibility and scale.

Figure 6shows the most trending topics in the domain of skepticism towards advertising. The terms like skepticism, trust, attitude, disclosures have been trending after 2020, showing that the interest of the researchers have increased in these terms and they have been frequently used and researched in the recent years.

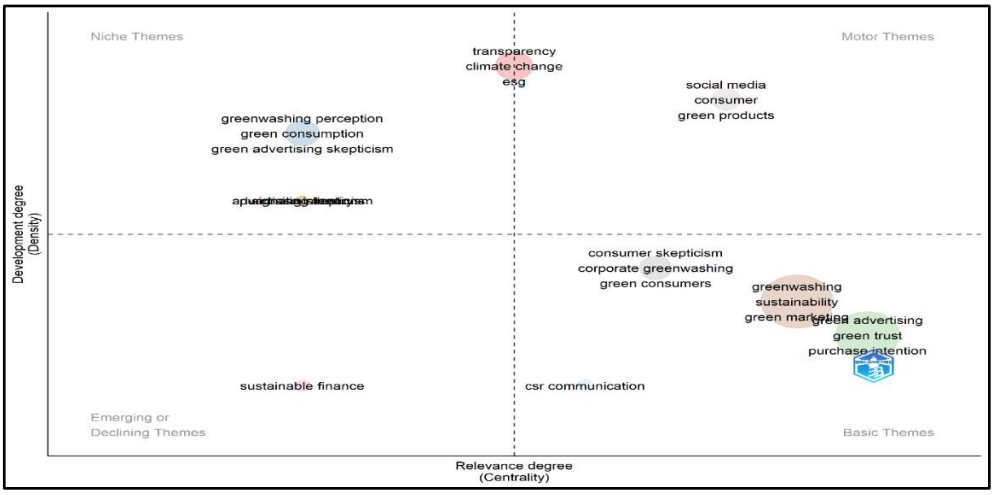
Figure 6 Most trending topics in the domain of perceptions of green advertising



The figure 7 illustrates the thematic map generated using Biblioshiny, which categorizes topics or themes according to two dimensions: Relevance Degree (Centrality) on the x-axis and Development Degree (Density) on the y-axis. Relevance Degree (Centrality): Signifies the significance or interconnectedness of an issue within the broader field of study. Themes positioned further to the right are more central or pertinent. Development Degree (Density): Indicates the extent of a theme's development within the domain. Themes at higher levels are more extensively investigated and elaborated upon. Thematic maps are frequently employed in bibliometric or thematic analysis to categorize themes within a study subject into four quadrants. (i) Top-Right quadrant (Motor Themes): Extremely pertinent and thoroughly elaborated. These themes propel the discipline forward. This diagram includes issues such as social media, consumerism, and eco-friendly items. (ii) Top-Left (Niche Themes): Well developed yet peripheral. These are specialized subjects with extensive investigation with minimal wider significance. Topics such as transparency, climate change, and ESG (Environmental, Social, and Governance) are prevalent. (iii) Bottom-Right (Fundamental Themes): Significantly pertinent yet underdeveloped. These are fundamental concepts that are significant to the field but necessitate further investigation. This quadrant encompasses themes such as greenwashing, sustainability, and green marketing. (iv) Bottom-Left (Emerging or Declining Themes): Minimally pertinent and underdeveloped. These are either nascent issues or those that are diminishing in significance within the area. Sustainable finance is situated here.

Greenwashing is a pivotal issue of significant relevance, situated in the Basic Themes quadrant. Nonetheless, green advertising skepticism emerges in the Niche Themes quadrant, indicating that the area is well researched but a specialized area of study within green washing domain. The topic placed in this quadrantcan be a specialized subfield with focused attention, but it may not yet have fully explored all its potential dimensions.The additional keywords in the cluster include perception of green advertising and green consumption.

Figure 7 Thematic Map



Discussion and Conclusions

The study presents the historical trends on the subject skepticism towards advertising based on 261 articles extracted from Scopus and Web of Science databases for the period of 2007 to 2024. An annual growth rate of 29.11 percent indicates a massive interest of researchers in the field. The spike in the annual production of publications was observed in 2018 and since then the annual production has increased from 14 articles in 2018 to 77 articles in 2024. Among the most prolific Journals, Sustainability and Journal of Cleaner Production has published majority of articles on this subject. The study also reveals that green washing has been the common subject of the most cited articles globally and that signals presence of exaggerations in green advertising that leads to skepticism towards green advertising. USA and China have not only published the maximum number of articles but also received highest citations. Researchers from India too have been keenly interested in the subject putting India in the most prolific countries publishing on the subject and have collaborated with researchers from USA, China, Pakistan, Saudi Arabia, Australia and Ireland.

The bibliometric analysis identified the main constructs with which the skepticism towards green advertising has been studied. These include behaviour, consumers, attitude, information, involvement, antecedents, consequences, intention, willingness-to-pay, persuasion knowledge, sustainability, corporate social responsibility and scale. This analysis shall assist researchers to study the domain of skepticism towards green advertising. In past, attempts have been made to study the antecedents and consequences of skepticism towards green advertising. Factors affecting skepticism towards green advertising discussed in previous studies include gender, green washing incidents, the consumers' perception of companies self-serving motives, industry and company size (Farooq & Wicaksono, 2021). It is also shown that more environmentally concerned consumers are more skeptical about green advertising (Do Paço & Reis, 2012). The negative relationship between green consumerism and green advertising skepticism in general and skepticism towards a green ad is also established in literature (Huang & Darmayanti, 2014; Matthes & Wonneberger, 2014b). Purchase intention, brand image, positive brand attitude (Nagar, 2015)and word of mouth has been studied to be a consequence of green advertising skepticism. Skepticism towards green advertising is generally affected by Persuasion knowledge(Isaac & Grayson, 2016; Kiymalioğlu & Akinci, 2021).

Future Research Directions:

While skepticism in green advertising has been studied, its relationship with adjacent topics like corporate social responsibility (CSR), ethical marketing, and consumer activism can be further explored. Comparative studies across different industries or marketing media can be undertaken in future to see if skepticism behaves differently in these contexts. We also suggest the researchers to study the relationship between skepticism towards green advertising with past experiences with green washing, evolving environmental knowledge, peer influence and personality differences. Another direction of future research that can be suggested is to analyse the impact of disclosures and verifiable claims on skepticism towards green advertising. This would help the policy makers in laying the guidelines for marketers and restricting green washing practices. Lastly, the researchers can undertake a similar bibliometric study based on data bases such as dimensions and google scholar along with Scopus and Web of Science, for a more comprehensive bibliometric analysis.

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